

REMARKS

In the Claims

Claims 1 and 4 were amended. New dependent claims 7 to 18 were also added. Support for the amendments and the new claims 7 to 18 can be found in the specification. No new matter is added. New claims 19 and 20 are the same as original claims 1 and 4.

The First Rejection under 35 USC § 103

Claims 1-3 were rejected as allegedly unpatentable over Lutz et al., US 5,973,004. The Office Action alleges that Lutz teach the use of silane and siloxane containing compositions as adhesion promoters and “primers”. Applicants respectfully disagree. Lutz does not teach primers (primers in the present context is a shorthand for the claim preamble where an agent is applied to a surface prior to the addition of the compound or composition whose adhesion is to be strengthened). The word or the concept of a primer does not appear anywhere in the reference. Lutz only teaches his compositions as “useful as adhesion-promoting additives for curable organopolysiloxane compositions.” See column 5, lines 53-54, and column, 7, line 66 to column 8, line 4. Thus, Lutz adds the adhesion promoter to the siloxane component whose adhesion is to be enhanced. The reference never teaches or suggests a surface treatment agent as claimed wherein the adhesion promoter agent is applied to the substrate prior to formation of a resist pattern, e.g., prior to application of a photoresist such as a siloxane to the substrate. The present claims are not directed to an embodiment where the primer is brought into a composition with the material that is to form the resist pattern, i.e., not directed to an additive. Claim 1 of the present invention clearly teaches that the surface treatment agent is applied to the substrate prior to formation of a resist pattern thereon. Thus, the claimed composition can not be understood to comprise the components of the resist pattern itself.

Because the claims are patentably distinct from the present invention for at least the reasons above, applicants choose to not burden the record by addressing all the other allegations made in the Office Action. This is not to imply agreement with any. A brief reply to one allegation is provided.

The Office Action alleges that it would have been obvious to hydrolyze 3-glycidoxypropyltrimethoxysilane to form a primer because Lutz allegedly teaches that such improves the adhesion-promotion of the compound. The reference teaches that the

composition is a reaction product of components A, polyhydric alcohol, B, organosiloxane, and C, silane. The reference teaches that this reaction is conducted under an inert, anhydrous atmosphere. During the reaction, water is generated and is removed by distillation as the reaction progresses to avoid the reversal of the reaction. See column 5, lines 8-44. It is clear from Claim 2 and the examples that the reaction to form the presently claimed compound of formula (1) is performed in the presence of water. See example 1, for example. Thus, it appears that the chemical reactions in the two references are opposites, one is in the presence of water, while the other is not.

None of the claims are rendered obvious by Lutz. Reconsideration of the rejections is respectfully requested.

The Second Rejection under 35 USC § 103

Claims 4-6 were rejected as allegedly unpatentable over Lutz et al., US 5,973,004 as applied to the claims above in view of Harris et al., US 5,668,210.

All arguments from above are incorporated herein.

The Office Action alleges that it would have been obvious to use Lutz's organo-silane primer to increase the adhesion of photoresists to substrates as taught by Harris because it teaches that it is conventional in the art. However, Lutz's organo-silane primer as discussed above is not used as a primer, but an additive, to a curable organosilicon-composition. See column 5, lines 53-54, and column, 7, line 66 to column 8, line 4. Thus, even if Harris teaches the use of primers, which is not admitted, the combination of this disclosure would not render the claimed invention obvious.

The Office Action also alleges that based on the examples in the reference one would have a reasonable expectation of improving adhesion by using partially hydrolyzed silanes. Even if admitted, which it is not, this disclosure would not render the claimed invention obvious. The primary reference specifically teaches reactions, which are conducted under an inert, anhydrous atmosphere, with the removal of water as the reaction progresses. In order for a combination to be obvious, the references themselves have to provide the motivation for the desired combination. There is no discussion in either reference that would provide the motivation to modify the primary reference contrary to its teachings. One of skill in the art would not have used hydrolysis in a reaction scheme where the reference teaches that the reaction should be conducted under an inert, anhydrous atmosphere, with the removal of

water as the reaction progresses. Thus, for this additional reason as well, the presently claimed invention is not obvious.

Attached hereto is a marked-up version of the changes made to the claims by the current amendment. The attached page is captioned "**Version With Markings To Show Changes Made**".

The Commissioner is hereby authorized to charge any fees associated with this response or credit any overpayment to Deposit Account No. 13-3402.

Respectfully submitted,



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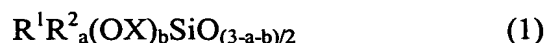
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Version With Markings To Show Changes Made

In the Claims

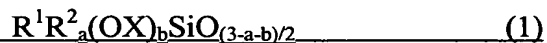
The claims have been amended as follows:

1. (Amended) A surface treatment agent which, when applied to a substrate prior to formation of a resist pattern thereon, strengthens adhesion between the substrate and the resist pattern, the surface treatment agent ~~comprising~~ consisting essentially of at least one compound of the following compositional formula:



wherein R^1 is a $-(CH_2)_nY$ moiety in which Y is epoxycyclohexyl, glycidoxy, N- β -aminoethylamino, amino, N-phenylamino, mercapto or isocyanate, and n is an integer from 0 to 4; R^2 is a monovalent hydrocarbon group of 1 to 4 carbons; X is hydrogen or a monovalent hydrocarbon group of 1 to 4 carbons; "a" is 0 or 1, and "b" is 0, 1 or 2 when "a" is 0, and "b" is 0 or 1 when "a" is 1, and a solvent selected from the group consisting of alcohols, aromatic solvents, esters and ketones, the concentration of said compound of formula (1) in said surface treatment agent being in the range of 0.001 to 5% by weight.

4. (Amended) A patterning process for forming a resist pattern on a substrate comprising the steps of applying to the substrate a surface treatment agent ~~of claim 1 to a substrate and~~ consisting essentially of at least one compound of the following compositional formula:



wherein R^1 is a $-(CH_2)_nY$ moiety in which Y is epoxycyclohexyl, glycidoxy, N- β -aminoethylamino, amino, N-phenylamino, mercapto or isocyanate, and n is an integer from 0 to 4; R^2 is a monovalent hydrocarbon group of 1 to 4 carbons; X is hydrogen or a monovalent hydrocarbon group of 1 to 4 carbons; "a" is 0 or 1, and "b" is 0, 1 or 2 when "a" is 0, and "b" is 0 or 1 when "a" is 1, and a solvent selected from the group consisting of alcohols, aromatic solvents, esters and ketones, the concentration of said compound of formula (1) being in the

range of 0.001 to 5% by weight,

baking at 80 to 120°C, and then

applying thereon a photoresist composition and patterning the photoresist
composition.

Claims 7-20 have been newly added.